

-13-

What is claimed is:

1. An endovascular sleeve for delivering a pair of guidewires to a bifurcated body passageway, the sleeve comprising a first tubular passageway and a second tubular passageway fixed with respect to one another, the first tubular passageway comprising a first distal end and a first proximal end, the second tubular passageway comprising a second distal end and a second proximal end, the first distal end extending beyond the second distal end to define a junction which abuts against a crotch in the bifurcated body passageway;

characterized in that a guidewire is disposed in the first tubular passageway and the second tubular passageway is free of any guidewire.

2. The endovascular sleeve defined in claim 1, further comprising a radioopaque marker disposed thereon.

3. The endovascular sleeve defined in claim 2, wherein the radioopaque marker is disposed at the junction.

4. The endovascular sleeve defined in any one of claims 1-3, wherein the first passageway has a substantially circular cross-section.

5. The endovascular sleeve defined in any one of claims 1-3, wherein the second passageway has a substantially circular cross-section.

6. The endovascular sleeve defined in any one of claims 1-3, wherein both the first passageway and the second passageway have a substantially circular cross-section.

7. The endovascular sleeve defined in any one of claims 1-6, wherein the first distal end extends beyond the second distal end by a margin of at least about 0.3 cm.

-14-

8. The endovascular sleeve defined in any one of claims 1-6, wherein the first distal end extends beyond the second distal end by a margin in the range of from about 0.3 to about 3 cm.
9. The endovascular sleeve defined in any one of claims 1-6, wherein the first distal end extends beyond the second distal end by a margin in the range of from about 0.5 to about 2 cm.
10. The endovascular sleeve defined in any one of claims 1-9, wherein the first distal end is chamfered.
11. The endovascular sleeve defined in any one of claims 1-9, wherein the second distal end is chamfered.
12. The endovascular sleeve defined in any one of claims 1-9, wherein both the first distal end and the second distal end are chamfered.
13. An expansible prosthesis delivery system for delivery of an expansible prosthesis to a bifurcated body passageway, the system comprising:
a catheter,
a guidewire; and
an endovascular sleeve comprising a first tubular passageway and a second tubular passageway fixed with respect to one another, the first tubular passageway comprising a first distal end and a first proximal end, the second tubular passageway comprising a second distal end and a second proximal end, the first distal end extending beyond the second distal end to define a junction which abuts against a crotch in the bifurcated body passageway;
characterized in that the guidewire is disposed in the first tubular passageway and the second tubular passageway is free of any guidewire.
14. The system defined in claim 13, wherein the endovascular sleeve further comprises a radioopaque marker disposed thereon.

COPIED 05/11/00

-16-

25. The system defined in any one of claims 13-24, wherein the catheter comprises at least one expandable member.

26. The system defined in claim 25, wherein the expandable member is disposed adjacent a distal end of the catheter.

27. The system defined in any one of claims 25-26, wherein the catheter comprises two expandable members.

28. The system defined in any one of claims 25-27, wherein the catheter comprises a substantially Y-shaped expandable member.

29. The system defined in any one of claims 25-28, wherein the expandable member is a balloon.

30. The system defined in any one of claims 25-29, further comprising a bifurcated stent disposed on the expandable member.

31. The system defined in claim 30, wherein the bifurcated stent is mounted on the expandable member.

32. A method for delivery of a bifurcated stent to a target bifurcated body passageway having a proximal body passageway, a first distal body passageway and a second distal body passageway using an endovascular sleeve comprising a first tubular passageway and a second tubular passageway fixed with respect to one another, the first tubular passageway comprising a first distal end and a first proximal end, the second tubular passageway comprising a second distal end and a second proximal end, the first distal end being longer than the second distal end to define a junction which abuts against a crotch in the bifurcated body passageway, the method comprising the steps of:

(i) navigating a first guidewire through the primary proximal body passageway and into the first distal body passageway;

097449550.064304

-17-

(ii) feeding the first tubular passageway of the endovascular sleeve over the first guidewire;

(iii) navigating the endovascular sleeve through the primary proximal body passageway until the first distal end is disposed in the first distal body passageway and the junction abuts a crotch in the bifurcated body passageway;

(iv) navigating a second guidewire through the second tubular passageway and into the second distal body passageway;

(v) withdrawing the endovascular sleeve from the body passageway;

(vi) guiding a catheter over the first guidewire and the second guidewire, the catheter having a bifurcated stent disposed thereon;

(vii) navigating the bifurcated stent to the target bifurcated body passageway; and

(viii) expanding the bifurcated stent.

33. The method defined in claim 32, wherein the catheter further comprises at least one expandable member on which the bifurcated stent is disposed and Step (viii) comprises expanding the expandable member to convey a radially expansive force to the bifurcated stent.

34. The method defined in claim 33, wherein the expandable member is disposed adjacent a distal end of the catheter.

35. The method defined in any one of claims 33-34, wherein the catheter comprises two expandable members.

36. The method defined in any one of claims 33-35, wherein the catheter comprises a substantially Y-shaped expandable member.

37. The method defined in any one of claims 33-36, wherein the expandable member is a balloon.

38. The method defined in any one of claims 32-37, wherein the bifurcated

-18-

stent is constructed of a plastically deformable material.

39. The method defined in any one of claims 32-37, wherein the bifurcated stent is constructed of stainless steel.

40. The method defined in any one of claims 32-37, wherein the bifurcated stent is constructed of a self-expanding material.

41. The method defined in any one of claims 32-40, wherein the catheter further comprises a sheath covering the bifurcated stent and Step (viii) comprises removing the sheath to expose the bifurcated stent resulting in a radially expansive force thereon.

42. The method defined in claim 40, wherein the self-expanding material is nitinol.

43. The method defined in any one of claims 40 and 42, wherein the self-expanding material expands at a temperature of greater than about 30°C.

44. The method defined in any one of claims 40-42, wherein the self-expanding material expands at a temperature of in the range of from about 30°C to about 40°C.

45. The method defined in any one of claims 32-44, wherein the endovascular sleeve further comprises a radioopaque marker disposed thereon.

46. The method defined in claim 45, wherein the radioopaque marker is disposed at the junction.

47. The method defined in any one of claims 32-46, wherein the first passageway has a substantially circular cross-section.

-19-

48. The method defined in any one of claims 32-46, wherein the second passageway has a substantially circular cross-section.

49. The method defined in any one of claims 32-46, wherein both the first passageway and the second passageway have a substantially circular cross-section.

50. The method defined in any one of claims 32-49, wherein the first distal end is at least about 0.3 cm is longer than the second distal end.

51. The method defined in any one of claims 32-49, wherein the first distal end is longer than the second distal end by a margin in the range of from about 0.3 to about 3 cm.

52. The method defined in any one of claims 32-49, wherein the first distal end is longer than the second distal end by a margin in the range of from about 0.5 to about 2 cm.

53. The method defined in any one of claims 32-52, wherein the first distal end is chamfered.

54. The method defined in any one of claims 32-52, wherein the second distal end is chamfered.

55. The method defined in any one of claims 32-52, wherein the both the first distal end and the second distal end are chamfered.

Sub
B1 56. The endovascular sleeve defined in any one of claims 1-12, wherein the second proximal end extends beyond the first proximal end.

57. The endovascular sleeve defined in claim 56, wherein the first tubular passageway has a length such that the first proximal end does not emanate from

-20-

a subject and the second tubular passageway has a length such that the second proximal emanates from the subject.

58. The endovascular sleeve defined in any one of claims 1-12, wherein the second proximal end the first proximal end and the second proximal end are substantially juxtaposed.

59. The endovascular sleeve defined in claim 58, wherein the first tubular passageway and the second tubular passageway have a length such that the first proximal end and the second proximal end each emanate from a subject.

60. The endovascular sleeve defined in any one of claims 1-12 and 56-59, wherein the first tubular passageway and the second tubular passageway are each constructed of a material having sufficient integrity to be navigated through tortuous body passageways.

Add a1